Germination Studies for Various Wildflowers for Species Seeded at the USDA NRCS Big Flats Plant Materials Center

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Seeding native wildflowers for enhancing pollinator habitat is a challenging task. Many wildflowers exhibit a form of seed dormancy, that can be broken when certain environmental conditions are met. This can be tricky because even some lots of wildflower seed can show different dormancy conditions. There are countless articles and research that has been performed to test the dormancy of many wildflowers and even these results will vary from year to year due to changing environmental conditions.

Over the past 3 years, we performed germination tests on the species we have been using for establishing pollinator habitat. Each species was put directly in the greenhouse without any pre-treatment and subjected to a period of time in the plant cooler, to mimic winter conditions, and or known as cold-moist stratification. Each species was researched, and based on current and available literature, they were put in the plant cooler, for either 1, 2, or 3 months. Very small seeded species require heat and light for germination, such as square stem monkey flower, and Lobelia spp., and were surface sown, and lightly pressed onto the soil. In general, most species benefit from a period of cold-moist stratification. They show signs of faster germination time as well as blooming faster.

The chart below is broken down, by pre-treatment category and no pre-treatment. Better germination, refers to the findings that, species under this category, germinated faster, with that treatment. Most wildflowers need to be sown within a year's time, and even with pre-treatment, germination percents dropped significantly. Blue and White vervain exhibited this characteristic, as well as purple and wild bergamot, spotted-bee balm, and New England aster. Knowing that most species have a form of dormancy, seeding these species for increasing pollinator habitat may not exhibit the desired results in the first or second year. Weed management in the first couple of years after seeding, needs to be carried out as well, for wildflower plantings.

Any questions, please contact us at 607-562-8404, or email Shawnna.clark@ny.usda.gov

GREENHOUSE OBSERVATIONS OF GERMINATION REQUIREMENTS FOR VARIOUS WILDFLOWERS COMMON TO THE EASTERN US.

Better germination when surface sown, light and heat and cold strat	Better germination when surface sown, no cold strat required	Readily germinates with no Pre-treatment (@ least 70F)	Better Germination with 1-month Cold Stratification (39F)	Better Germination with 2 month cold-moist strat (39F)
big leaf aster	bluestem goldenrod	black-eyed susan	ashy sunflower	culver's root
boneset	boneset	blue vervain (FRESH SEED)	common milkweed	ohio spiderwort
cardinal flower	calico aster	butterfly milkweed	flat top white aster	purple giant hyssop
common sneezeweed	common sneezeweed	chicory	giant sunflower	spotted joe pyeweed
early goldenrod	culver's root	evening primrose	gray headed coneflower	
grass-leaved goldenrod	early goldenrod	giant sunflower	hairy beardtongue	
great blue lobelia	gray goldenrod	Indian Hemp	hoary vervain	
purple giant hyssop	hairy white oldfield aster	lance leaf coreopsis	Indian hemp	
Riddells goldenrod	New England Aster	New York ironweed	marsh blazing star	
rough leaf goldenrod	New York Aster	plains coreopsis	Ohio spiderwort	
showy goldenrod	perennial blue flax	purple bergamot	oxeye sunflower	
swamp milkweed	rough leaf goldenrod	purple coneflower	rough blazing star	
	showy goldenrod	spotted bee balm	tall white beardtongue	
	smooth blue aster	turtlehead	VA mountain mint	
	spotted joe pyeweed	white vervain (FRESH SEED)	zigzag spiderwort	
	zigzag aster	wild bergamot		
		WITH SCARIFICATION		
		false blue indigo		
		lespedeza		
		lupine		
		partridge pea		
		showy tick trefoil		
		wild indigo		
		wild senna		

**IF SPECIES IS IN ANOTHER COLUMN, IT DID EQUALLY WELL IN EITHER TREATMENT

**Per Literature, most wildflowers native to the eastern US, perform and germinate better with at least 1-month cold-moist stratification

**Seeds should be fresh as possible and a current germination test should have been performed within 6 months of receiving the seeds